

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1, 4, 6, 9, 10, 12, 15, 18-24, and 26-28 are presently active in this case. Claims 1, 4, 6, 9, and 21 have been amended herein, Claims 2, 3, 5, 7, 8, 11, 13, 14, 16, 17, and 25 have been canceled without prejudice or disclaimer, and Claims 27 and 28 have been added. No new matter has been entered. Support for the claim amendments can be found throughout the specification, and in the previously pending claims.

Claims 1, 4, and 10-14 were rejected under 35 U.S.C. 112, first paragraph. The Applicants respectfully traverse this rejection. The language at issue has been deleted from the claims, however, the Applicants submit that such a deletion is done without prejudice or disclaimer. Thus, the Applicants request the withdrawal of the above rejection.

Claims 1, 4, 6, and 9-26 were rejected under 35 U.S.C. 112, second paragraph. The punctuation in Claims 1 and 6 has been amended as suggested in the Official Action. Additionally, the language at issue in Claims 4, 6, 9, and 21 has been amended to distinctly claim the present invention. Accordingly, the Applicants respectfully request the withdrawal of the indefiniteness rejection.

Claims 1, 4, 12, 18, and 21-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Khan et al. (U.S. Pub. No. 2002/0164417). Claims 1, 4, 12, 18, and 21-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Rigney et al. (U.S. Patent No. 6,274,193) in view of Rigney et al. (U.S. Patent No. 6,042,880). Claims 6, 9, 15, and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Khan et al. in view of

Sangeeta et al. (U.S. Patent No. 6,485,780). Claims 6, 9, 15, and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Rigney '193 in view of Rigney '880 and further in view of Sangeeta et al. Claims 10, 11, 13, 14, and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Khan et al. or Rigney '193 in view of Rigney '880 and further in view of Alperine et al. (EP 1085109 A1). Claims 16, 17, and 20 were rejected under 35 U.S.C. 103(a) as being unpatentable over either Khan et al. in view of Sangeeta et al. or Rigney '193 in view of Rigney '880 and Sangeeta et al. and further in view of Alperine et al. For the reasons discussed below, the Applicants traverse the obviousness rejections.

The basic requirements for establishing a *prima facie* case of obviousness as set forth in MPEP 2143 include (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the reference (or references when combined) must teach or suggest all of the claim limitations. The Applicant submits that a *prima facie* case of obviousness cannot be established in the present case because the cited references, either taken singularly or in combination, do not teach or suggest all of the claim limitations.

Firstly, the Applicants note that the subject matter of Claims 14 and 17 has been incorporated into Claims 1, 6, and 21, thus rendering all but the last two obviousness rejections moot.

Claim 1 recites a method of repairing a Ni-based alloy part comprising the steps of removing a damaged portion of the topcoat layer without removing all of the topcoat layer and removing a denatured portion of the undercoat layer corresponding to the damaged

portion; forming another undercoat layer in a removed portion, and forming another topcoat layer only at a portion where the topcoat layer has been damaged, wherein the topcoat layer and the another topcoat layer are formed of different material. Claims 6 and 21 recite similar features.

The Official Action suggests on page 16, lines 3-6, and page 17, lines 5-8, that the Khan et al., Rigney '193, Rigney '880, and Sangeeta et al. references all fail to disclose a topcoat layer and another topcoat layer being formed of a different material, which is recited in each of amended Claims 1, 6, and 21. The Official Action the Alperine et al. reference for such a teaching.

The Official Action indicates that the Alperine et al. reference teaches that one type of ceramic has advantages over another type of ceramic, and therefore one of skill in the art would have used the more advantageous ceramic as the another topcoat layer. However, the Applicants note that the Alperine et al. reference does not deal with a situation in which only a damaged portion of a topcoat layer is being removed and repaired with another topcoat layer. The Applicants respectfully submit that the Alperine et al. reference would suggest to one of skill in the art to the advantageous ceramic disclosed therein for both the topcoat layer and the another topcoat layer. But, the Alperine et al. reference would not suggest to one of skill in the art to use a different material for the another topcoat layer, than the material used for the original topcoat layer. Such a conclusion can only be reached through the use of hindsight. The use of a different material could raise issues about material compatibility and bonding characteristics, which are not addressed in the Alperine et al. reference.

The Applicants, therefore, respectfully submit that the rejection is based on the improper application of hindsight considerations. It is well settled that it is impermissible simply to engage in hindsight reconstruction of the claimed invention, using Applicant's structure as a template and selecting elements from the references to fill in the gaps. *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991). Recognizing, after the fact, that a modification of the prior art would provide an improvement or advantage, without suggestion thereof by the prior art, rather than dictating a conclusion of obviousness, is an indication of improper application of hindsight considerations. Simplicity and hindsight are not proper criteria for resolving obviousness. *In re Warner*, 397 F.2d 1011, 154 USPQ 173 (CCPA 1967).

Additionally, amended Claims 1, 6, and 21 of the present invention are characterized in removing a damaged portion of the topcoat layer without removing all of the topcoat layer and removing a denatured portion of the undercoat layer corresponding to the damaged portion, forming another topcoat layer formed of ZrO₂-based ceramics only at a portion where the topcoat layer has been damaged, and the topcoat layer and the another topcoat layer being formed of different material.

To the contrary, column 7, lines 5-8, of the Rigney et al. reference describes removing a TBC over the entire airfoil as an example. However, the Rigney et al. reference does not disclose using a different material to repair a topcoat layer after the TBC has been removed. This is clear from every figure of the Rigney et al. reference, and the entire surface of the topcoat layer is formed of the same material at all parts. That is, the Rigney et al. reference does not disclose removing a damaged portion of the topcoat layer without removing all of

the topcoat layer and removing a denatured portion of the undercoat layer corresponding to the damaged portion, forming another topcoat layer formed of ZrO₂-based ceramics only at a portion where the topcoat layer has been damaged, and the topcoat layer and the another topcoat layer being formed of different material as in the present invention.

As described above, none of the cited references disclose removing a damaged portion of the topcoat layer without removing all of the topcoat layer and removing a denatured portion of the undercoat layer corresponding to the damaged portion, forming another topcoat layer formed of ZrO₂-based ceramics only at a portion where the topcoat layer has been damaged, and the topcoat layer and the another topcoat layer being formed of different material as in the invention of the present application. The special advantage that the melted substances bond to each other on the target material (damaged portion of a base-material), the bonding strength between the particles and between the particles and base-material being strong, and as a result, making it possible to form a thermal barrier coating which is resistant to use under high-temperature due to a plasma spraying method in which metal or ceramics powder is put into a flame and blown to be melted. Therefore, even a person skilled in the art cannot easily provide the present invention by merely combining the cited references.

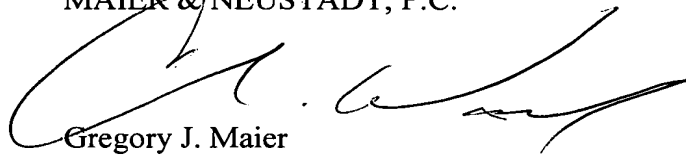
Accordingly, the Applicants submit that a *prima facie* case of obviousness cannot be established with respect to Claims 1, 6, and 21. Thus, the Applicants respectfully request the withdrawal of the obviousness rejections of Claims 1, 6, and 21. Furthermore, the dependent claims are considered allowable for the reasons advanced for the independent claim from which they respectively depend.

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Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully Submitted,

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